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Title: TA-50 Radioactive Liquid Waste Treatment Facility, Discharge Plan (DP-1132), Minor Modification

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Intended for: NMED
Report
Waste management
Reading Room
NM WQCC



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DRAFT

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(505) 667-7969/FAX: (505) 665-9344

Date: March XX, 2011
Refer To: ENV-RCRA: 11-
LA-UR:

Mr. William C. Olson, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Mr. Olson:

**SUBJECT: TA-50 RADIOACTIVE LIQUID WASTE TREATMENT FACILITY,
DISCHARGE PLAN (DP-1132), MINOR MODIFICATION**

In accordance with 20.6.2.3107 of the New Mexico Water Quality Control Commission Regulations, Los Alamos National Laboratory (the Laboratory) is notifying you of a minor modification to the TA-50 Radioactive Liquid Waste Treatment Facility's Discharge Plan (DP-1132).

The Radioactive Liquid Waste Treatment Facility (RLWTF) is making modifications to the low-level wastewater treatment system. Modifications include installing pipes and components to bypass the existing RLWTF gravity sand filter and tubular ultra-filter (TUF) and replace the bypassed treatment processes with a pressure media filtration and cartridge filtration capability. The installation of these new filtration capabilities will provide the RLWTF with reliable filtration downstream of the process clarifier and upstream of the reverse osmosis unit. Additionally, the seawater reverse osmosis unit (SWRO) and associated reject tank have been removed from the treatment system. A pilot study was conducted to determine if the volume of the regular reverse osmosis (RO) concentrate stream could be reduced using a SWRO unit. The pilot study has been completed and the hoses to the SWRO have been disconnected. Enclosure 1 highlights the aforementioned treatment system modifications. Enclosure 2 represents the modified treatment schematic to be in operation in late July or early August 2011.

Additionally, in April 2011, the RLWTF will initiate the use of magnesium hydroxide instead of calcium hydroxide in the facility's treatment system clarifier. Magnesium hydroxide raises the pH in the clarifier and is the source of the hydroxide ion that precipitates with the ferric iron. RLWTF treatment operators would like to use magnesium hydroxide rather than calcium hydroxide because it has been proven to be more effective in silica removal in the clarifier, which then reduces silica

DRAFT

March xx, 2011

fouling of the reverse osmosis (RO) membranes and the Hydrochem waste evaporator heat exchanger plates. The Material Safety Data Sheet (MSDS) for magnesium hydroxide is enclosed for your review (See Enclosure 3).

Please contact me at 505-667-7969 if you have questions.

Sincerely,

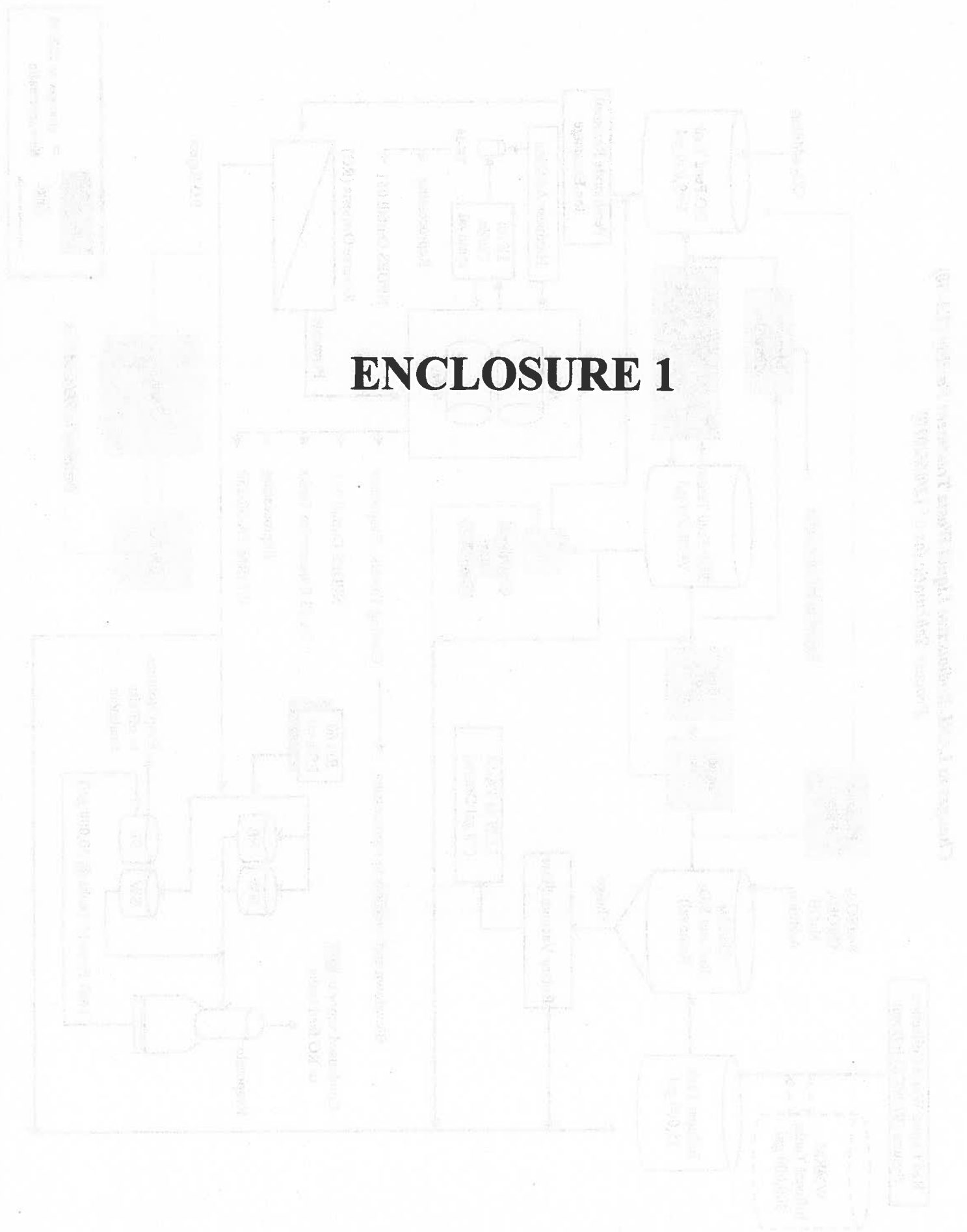
Robert Beers
Water Quality and RCRA Group

BB/lm

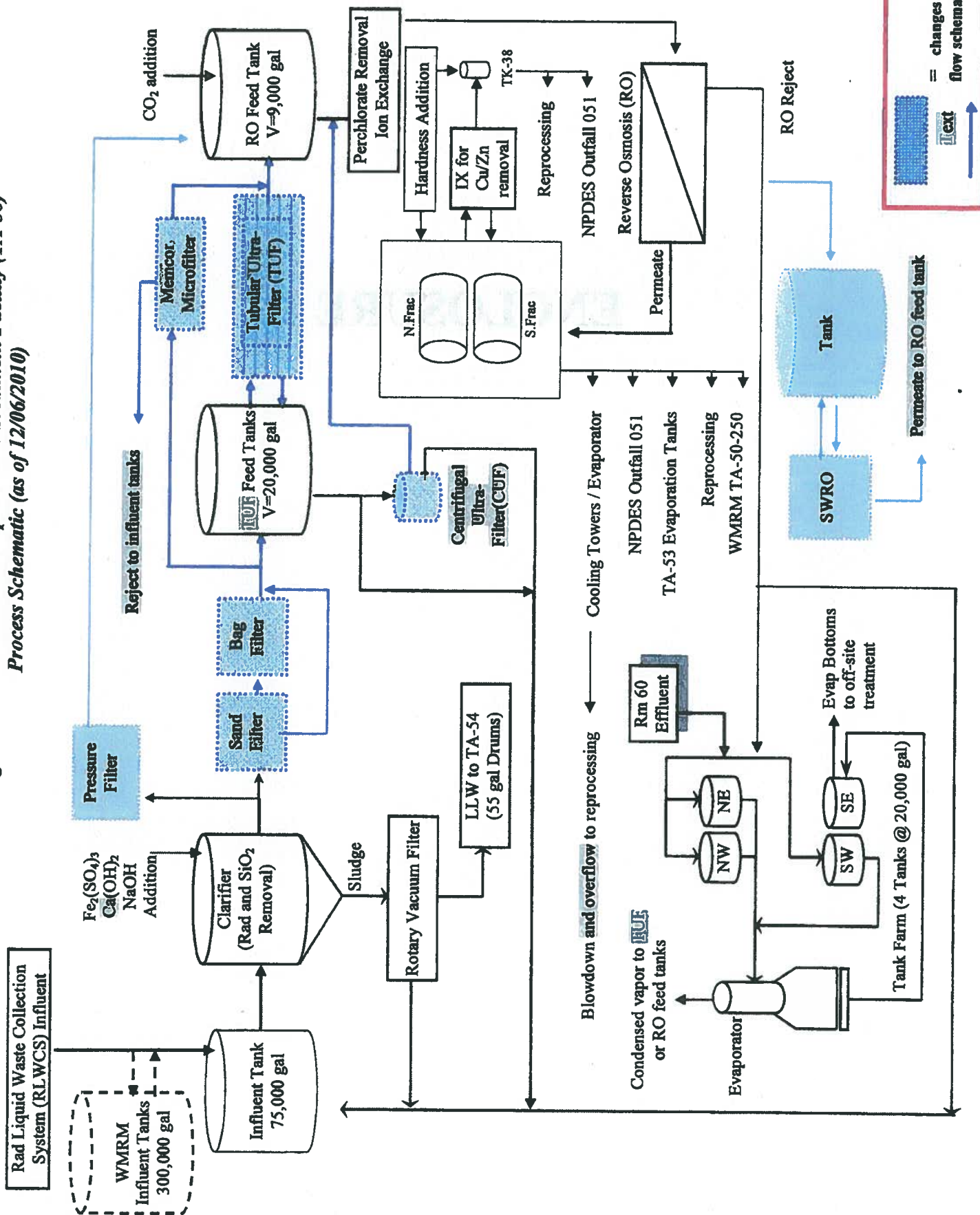
Enclosures: a/s

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Gene Turner, LASO-EO, w/enc., A316
Steve Yanicak, LASO-GOV, w/enc., M894
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ENV-RCRA File, K490
IRM-RMMSO, A150

ENCLOSURE 1



Changes to LANL Radioactive Liquid Waste Treatment Facility (TA-50)



ENCLOSURE 2

[illegible]

ENCLOSURE 3

Mag Hydramole



Univar USA Inc Material Safety Data Sheet

MSDS No:

Version No:

Order No:

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

UNIVAR USA INC.
ISSUE DATE:2000-04-17
Annotation:

MSDS NO:P14725V
VERSION:010 2006-08-18

The Version Date and Number for this MSDS is : 08/18/2006 - #010

SECTION I PRODUCT IDENTIFICATION

PRODUCT NAME: MAGNESIUM HYDROXIDE SOLUTION

MSDS #: P14725V

DATE ISSUED: 04/17/2000

SUPERSEDES: 08/08/1997

ISSUED BY: 008497

REVIEWED DATE: 07/16/2004

This MSDS has been reviewed on 07/16/2004, and is
current as of the DATE ISSUED above.

SECTION I Chemical Product And Company Identification

Product Name: Magnesium Hydroxide Solution
Hi-Chem Mag-50

CAS NUMBER: 1309-42-8

Distributed by:
Univar USA Inc.
17425 NE Union Hill Road
Redmond, WA 98052
425-889-3400

Section II Composition/Information On Ingredients

Chemical Name	CAS Number	%	Exposure Limits (TWAs) in Air		
			ACGIH TLV	OSHA PEL	STEL
Magnesium Hydroxide	1309-42-8	51-65	10 mg/m3	15 mg/m3	N/A
			(total dust)	(total dust)	
			5 mg/m3		
			(respirable dust)		

Section III Hazard Identification

ROUTES OF EXPOSURE: N/A

SUMMARY OF ACUTE HEALTH HAZARDS The product presents a very low health

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risk. Magnesium hydroxide is a general purpose food additive. Dust generated from the dried product is classified as a nuisance dust.

INGESTION: Ingestion is unlikely. If ingested in sufficient quantity, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain and diarrhea.

INHALATION: May irritate the respiratory tract on prolonged or repeated contact. May aggravate preexisting respiratory conditions.

SKIN: Repeated or prolonged contact may cause irritation

EYES: May irritate or injure eyes.

SUMMARY OF CHRONIC HEALTH HAZARDS: The excessive inhalation above (TLV) of mineral dust, over long periods of time, may cause industrial bronchitis, reduce breathing capacity, and lead to increased susceptibility to other lung disease.

SIGNS AND SYMPTOMS OF EXPOSURE: N/A

EFFECTS OF OVEREXPOSURE: N/A

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Dust from the dried product may aggravate pre-existing chronic lung conditions such as, but not limited to, bronchitis, emphysema, and asthma.

NOTES TO PHYSICIANS: N/A

Section IV First Aid Measures

INGESTION: Low toxicity. Give 1-2 glasses of water and seek immediate medical attention. Never give anything of mouth to an unconscious person. Leave decision to induce vomiting for medical personnel, since some particles may be aspirated into the lungs.

INHALATION: Move to fresh air; if discomfort persists, get medical attention.

SKIN: Wash with soap and water

EYES: Irrigate immediately with plenty of water. Obtain medical attention if necessary.

Section V Fire Fighting Measures

FLASH POINT: N/A

AUTOIGNITION TEMPERATURE: N/A

LOWER EXPLOSIVE LIMIT: N/A

UPPER EXPLOSIVE LIMIT: N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

EXTINGUISHING MEDIA: N/A

SPECIAL FIREFIGHTING PROCEDURES:

FIREFIGHTERS SHOULD WEAR NIOSH-APPROVED, POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING WHEN APPROPRIATE.

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Section VI Accidental Release Measures

Dike the spilled liquid, and either pump back into original container or cover with clay-type substance for absorption.

Section VII Handling and Storage

Store at ambient temperature. Prevent possible eye and skin contact by wearing protective clothing and equipment.

Section VIII Exposure Controls/Personal Protection

RESPIRATORY PROTECTION: Respirator approved by NIOSH/MSHA are adequate for contaminate concentrations encountered.

VENTILATION: N/A

PROTECTIVE CLOTHING: Gloves are recommended, rubber gloves re recommended when repeated or prolonged contact is likely.

EYE PROTECTION: Safety glasses are recommended.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: N/A

WORK/HYGIENIC PRACTICES: Avoid contact with the eyes and skin.

Section IX Physical and Chemical Properties

PHYSICAL STATE:	Milky liquid
MELTING POINT/RANGE:	N/A
pH:	10-11
BOILING POINT/RANGE:	212 DEG F, 100 DEG C
APPEARANCE/COLOR ODOR:	White - Off white, No odor
SOLUBILITY IN WATER:	NIL
SPECIFIC GRAVITY (Water = 1):	1.4-1.5
VAPOR DENSITY (Air = 1):	N/A
VAPOR PRESSURE (mmHg):	N/A
MOLECULAR WEIGHT:	N/A
† OF SOLUTION:	48-51 51-55 61-65
† VOLATILES:	49-52 45-49 35-39

Section X Stability and Reactivity

STABILITY: Stable HAZARDOUS POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID: N/A

MATERIALS TO AVOID: Acids and maleic anhydride Magnesium hydroxide is soluble in aqueous acids generating heat.

HAZARDOUS DECOMPOSITION PRODUCTS: HEAT AND STEAM

Section XI Toxicological Information

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N/A

Section XII Ecological Information

N/A

Section XIII disposal Considerations

May be disposed of in a secured sanitary landfill. Disposal must be done in accordance with Local, State, and Federal regulations.

Section XIV Transport Information

DOT Proper Shipping Name: N/A

DOT Hazard Class/I.D. No: N/A

Section XV Regulatory Information

Reportable Quantity: N/A

NFPA Rating: Health - 1; Fire - 0; Reactivity - 0

0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

Carcinogenicity Lists: No NTP: No IARC Monograph: No OSHA Regulated: No

Section XVI Other information

SYNONYMS/ COMMON NAMES: Brucite

CHEMICAL FAMILY TYPE: Magnesium Hydroxide

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

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